AMENDMENTS TO THE CLAIMS

Please amend the claims as follows.

1.   (Currently Amended) ~~[c1] A virtual attribute service in a~~ A directory server, comprising:

a client for sending a request for an attribute value associated with an entry in the directory server to a virtual attribute service;

a plurality of virtual attribute service providers operatively connected to the virtual attribute service, wherein at least of the plurality of virtual service attribute providers comprises functionality to service the request and return the result to the virtual attribute service; and

the virtual attribute service configured to forward the request to the one of the plurality of virtual attribute service providers and configured to return the attribute value to the client.

~~a virtual attribute service provider; and~~

~~an interface using the virtual attribute service provider to generate the attribute value associated with the entry, wherein the interface allows lifetime management of the attribute value.~~

2.   (Currently Amended) ~~[c2]~~ The directory server ~~virtual attribute service~~ of claim 1, wherein the attribute value is not physically contained within the entry.

3.   (Currently Amended) ~~[c3]~~ The directory server ~~virtual attribute service~~ of claim 1, wherein ~~the~~ at least one of the plurality of virtual attribute service providers comprises a role service.

4.   (Currently Amended) ~~[c4]~~ The directory server ~~virtual attribute service~~ of claim 1, wherein ~~the~~ at least one of the plurality of virtual attribute service providers comprises a class of service.

5.   (Currently Amended) ~~[c5]~~ The directory server ~~virtual attribute service~~ of claim 1, wherein ~~the~~ at least one of the plurality of virtual attribute service providers is implemented as a plugin to the directory server.

6.   (Currently Amended) [c6] A method of generating a value of a virtual attribute, comprising:

    receiving a request for the value of the virtual attribute from a client;

    forwarding the request from the virtual attribute service to one of a plurality of virtual attribute service providers;

    servicing the request by the one of the plurality of virtual attribute service providers to obtain the value of the virtual attribute;

    receiving the value of the virtual attribute by the virtual attribute service from the one of the plurality of virtual attribute service providers; and

    forwarding the value of the virtual attribute to the client.

    ~~calling a virtual attribute service by an executable application; and~~

    ~~consulting a virtual attribute service provider within a common interface of the virtual attribute service;~~

    ~~wherein the value of the virtual attribute is generated by the virtual service provider accessed by the common interface.~~

7.   (Currently Amended) [c7] The method of claim 6, further comprising:

     using a memory cache to store the value of the virtual attribute.

8.   (Currently Amended) [c8] The method of claim 6, further comprising:

    maintaining a count for a number of times a query passes through the virtual attribute service ~~common interface~~; and

    flagging an error and aborting the execution of the virtual attribute service if the count exceeds a threshold number.

9.   (Currently Amended) [c9] The method of claim 6, further comprising:

    checking a configuration change within a one of the plurality of virtual attribute service providers against ~~the~~ a configuration associated with each of the other plurality of ~~all~~ virtual service providers to [[;]] ~~determining~~ determine whether a cycle is created; and

    flagging an error and aborting the execution of the virtual attribute service if a cycle is created.

10.   (Currently Amended) ~~[c10]~~ The method of claim 6, wherein ~~the~~ <u>at least one of the plurality</u> <u>of</u> virtual attribute service provider<u>s</u> comprises a role service.

11.   (Currently Amended) ~~[c11]~~ The method of claim 6, wherein ~~the~~ <u>at least one of the plurality</u> <u>of</u> virtual attribute service provider comprises a class of service.

12.   (Currently Amended) ~~[c12]~~ The method of claim 6, wherein ~~the~~ <u>at least one of the plurality</u> <u>of</u> virtual attribute service provider<u>s</u> is implemented as a plugin to the directory server.

13.   (Currently Amended) ~~[c13]~~ A method of generating a value of a virtual attribute, comprising:

calling a virtual attribute service by an executable application;

consulting a virtual attribute service provider within a common interface of the virtual attribute service;

using a memory cache to store the value of the virtual attribute;

maintaining a count for the number of times a query passes through the common interface;

flagging an error and aborting the execution of the virtual attribute service if the count exceeds a threshold number;

checking a configuration change within a service provider against the configuration of all service providers;

determining whether a cycle is created; and

flagging an error and aborting the execution of the virtual attribute service if a cycle is created;

wherein the value of the virtual attribute is generated by the virtual service provider accessed by the common interface.

14. – 23. (Cancelled)

24. (Currently Amended) ~~[c24]~~ An apparatus for generating a value of a virtual attribute, comprising:

<u>means for receiving a request for the value of the virtual attribute from a client;</u>

<u>means for forwarding the request from the virtual attribute service to one of a plurality of</u> <u>virtual attribute service providers;</u>

means for servicing the request by the one of the plurality of virtual attribute service providers to obtain the value of the virtual attribute;

means for receiving the value of the virtual attribute by the virtual attribute service from the one of the plurality of virtual attribute service providers; and

means for forwarding the value of the virtual attribute to the client.

~~means for calling a virtual attribute service by an executable application; and~~

~~means for consulting a virtual attribute service provider within a common interface of the virtual attribute service;~~

~~wherein the value of the virtual attribute is generated by the virtual service provider accessed by the common interface.~~